

and æsthetic relation to the chamber which it illuminates. Enamel painting on glass is decidedly pushed much further than in former times, but we must doubt if it has advanced in its legitimate object, that of an adjunct to architectural effect.

Terra cotta, as a decorative adjunct to buildings, is one of the objects which the Exhibition was well adapted to bring under notice. After the progress made of late years, particularly by the firm of the Ladyshore works, it might seem remarkable that the combination of elegance with durability which it offers, should not have secured employment of the material commensurate with its capabilities, did we not call to mind the competition with which it has been met by the makers of artificial stone, and which has prevented its adoption for reduplications of a pattern.

Other difficulties arise from the very nature of the processes to which it is necessary to subject each branch of the manufacture, for we may regard the term terra cotta, in its most extended sense, as including even the finest porcelain. The component parts of the usual terra cotta are potter's clay, fine sand, and pulverised potsherds, mixed with water and thoroughly incorporated, and either modelled or cast in the state of a thin paste, in porous plaster moulds, which absorb the moisture. After air drying, the objects are baked in proper kilns at a very high temperature, during which process the shrinkage is sometimes very great. It is foreign to our purpose to enter into a detail of the different gradations in manufacture which exist between terra cotta, as baked fire clay, and porcelain, but all of them are subject to the inherent defects of contraction and distortion. The naturally abundant distribution of the clays which are found underlying coal seams in the colliery districts conduces much to the extensive application of the material, which, for the purposes of ornament, is gradually recovering the importance which it acquired in Italy, France, and Germany, from the fourteenth to the sixteenth centuries. Besides the productions of the Ladyshore works and other firms, a kind of perfect pottery, salt glazed and very nearly approaching to a true porcelain, was shown in the shape of drain and water pipes, vases, garden pots, architectural ornaments, and cases for plants, constructed upon Ward's principle. A bath, of the usual adult size, made in one piece of fine clay, plated with porcelain and glazed, was also exhibited. These baths are at present much used in public as well as private establishments, and I may observe that although they will bear a heavy blow without injury, yet they are liable to crack on the first inlet of hot water, if they are bedded solidly or fitted tightly: they should therefore stand on piers or bearers, and be free from anything which may prevent the expansion and contraction of the material. An Ionic capital for Clifden House, a Gothic pinnacle for a chapel at Tottenham, and some samples of "Parian" vitrified, seemed to promise well. In my own experience I have found that articles badly manufactured in terra cotta are likely to scale away on the surface, a defect which arises chiefly, if not always, from an improper mode of filling the moulds.

J. W. PAPWORTH.

NATURAL GAS JET.—In sinking for water at Chat-Moss a few weeks since, a stream of gas was got instead, which has ever since burned with a flame, extending to a height of 8 to 9 feet from a pipe 35 feet in length above ground, through which it has been conducted. This is not the only gas-jet of gigantic size running to waste in this country. There is one near Newcastle, which has blazed away for many years, and which it was some time since proposed to turn to useful account in street-lighting. If the one at Chat-Moss be likely to last, might not Manchester or Liverpool reap the benefit of it through a main run along the railway? Since writing the above we are led to understand that the jet at Chat-Moss has been put to use in heating the boiler of a steam-mill.

CONDITIONS IN SPECIFICATIONS.

"A BUILDER," sends the following extracts from the specification of a building about to be erected; and evidently regards the conditions they contain as altogether tyrannical:—

I. "All works to be done under the direction, and to the satisfaction of, A. B., Architect and Surveyor, or, in the case of his decease, of any other that the committee may appoint."

Here there is of course nothing to complain of. Individuals, or committees, having occasion for the professional intervention of an architect, are entitled to be satisfied as to the quality of the article to be paid for; and certainly that can only properly be through their professional friend or employer.

II. "The several works to be executed to the true intent and meaning of the drawings and such other details as may from time to time be furnished by the architect."

The details referred to are plainly enough "parts at large" of those works only which are set forth in the general drawings. As "other details" is the expression, we presume that a fair quantum is already given, sufficient to indicate their average degree of elaboration: if such is not the case, the contractor is reasonably entitled to look for them before binding himself to a price. Where details are given out by the architect piece-meal, after the contract is taken, dissatisfaction is very liable to spring up, and disputes ensue.

III. "In case any dispute should arise touching or concerning this contract, the matter in question shall be referred to the said A. B., whose decision shall be binding on all parties."

The carrying out of structural schemes is the natural and proper province of the architect; between whom and his immediate agent, the builder, an honourable confidence must subsist. When the former is so qualified that he can furnish his drawings and specifications so complete as to obviate all questions, and the latter makes his estimate with such care that out of a conscientious fulfilment of his contract he shall earn a fair profit, there can no harm accrue to the builder from the solution of difficulties resting with him who contrived the work in all its minutiae. The contractor's undertaking being an onerous one, he should take care and enter upon it with his eyes open. The substitution of an arbitration clause for this sole reference to the architect engaged for the employer, has been insisted on by the leading builders of the metropolis, and where large interests are at stake may reasonably be desired. The "Builders' Society," if we mistake not, was originally formed for the purpose of carrying this point.

IV. "Should anything be shown in the plans and not described in the specification; or anything described in the specification, and not shown in the drawings; or anything omitted in both which the architect may deem necessary for the completion of the several works in the design, the contractor is to execute the same in such manner as shall be directed by the said architect, and the same shall be included in the amount of contract."

The two first clauses here are reasonable: the two classes of documents, the drawn and the written, must be regarded together, and everything which they collectively demand be taken into consideration in the first instance and complied with. The third savours of the arbitrary, and might be unduly stretched, although the thing deemed necessary were only for the completion of the design. Were only a library chimney-piece, for example, forgotten both in the drawings and specification, there might be a wide difference of opinion as to the material and the amount of art-labour proper for it.

It is the duty of an architect to make his drawings and specifications so complete and clear that contractors, fully understanding the intention, may allow in their estimates neither too much nor too little for it; and then, on the other hand, it is the duty of the contractor to carry out that intention fully, and co-operate honourably with the architect in producing a satisfactory result.

AMERICAN NEWS.

Travest Bank, Boston.—The corporation of the bank have just completed a new building for business on the site of the old one in State-street. The new building extends from State-street to Park-office Avenue (a depth of over 180 feet), and is four stories high. The front is of Connecticut sandstone, in the Italian style of architecture, and of the Palladian school, though the cornice is nearly a copy from one of Vignola's. The first story is a series of three arcades with rusticated piers and vousoirs, surmounted by a stone balcony: the second story windows have moulded architraves and pilasters and curved consoles, supporting circular and triangular pediments: the third story windows are finished in the same manner, but with horizontal cornices, and a stone balustrade before each window: the fourth story windows have architraves only, but broken at the angles of the opening, and surmounted by horizontal cornices. The design is suitable for a more extended front. The building was erected by Mr. F. W. R. Emory, and the design was made by Mr. Charles E. Parker, of the firm of Bond and Parker, architects, all of Boston.

Fresco Painting.—Much progress, says the *Boston Transcript*, has been made in our country within a few years in this art. Our churches have many of them been relieved from their previous barn-like appearance, and the impression conveyed upon entering them made more compatible with the purposes for which they are intended. And no one has done this to greater perfection than our own countryman, Whittaker. We found him the other day at Thorndike Hall, putting on the finishing touch, and but lately returned from a visit to the Crystal Palace, and to the best specimens in his line in La Belle France. It is evident to many that stucco, costing ten times as much as fresco, will not prove so satisfactory as the latter, as recesses, projections, &c., giving walls and ceilings uneven surfaces, do not reflect sound so well as smooth and even surfaces, and consequently those churches and halls finished in fresco are always preferred by speakers and musicians to those richly finished in stucco. Mr. W.'s services have been so much in demand for the last five years, that some portion of the time he has not been able to execute orders short of a year's notice. [We suspect it is not fresco after all that is spoken of.]

Electro-telegraphic progress.—The Commonwealth states that there are already in the United States and Canada more than 12,000 miles of wire, involving a capital of 3,000,000 dollars. To work these lines costs annually 720 tons of zinc, worth 57,000 dollars, more than a million pounds of nitric acid, worth 117,800 dollars, and 27,000 dollars' worth of mercury, besides a considerable value in sulphuric acid, &c. [These statistics may show what amount of saving would be effected by the substitution of the magnetic telegraphic for the electro-magnetic.] On the line from Pittsburg to Cincinnati alone there were transmitted, in the year 1850, 364,559 paid dispatches, and the revenue received was 73,378 dollars.—A correspondent of our own informs us that the suggestion of a telegraphic fire alarm for towns, made in our pages, has been already carried out by the city government of Boston, and is now in successful operation, the telegraph giving the alarm to every engine house and church bell over the city, as well as to the mayor's and city marshals' offices.

Smithsonian Institute, Washington.—The building designed for the accommodation of the Smithsonian Institute is rapidly approaching its completion. The external part of the work is entirely finished, with the exception of a single tower, and the interior of the building is making good progress. Mr. Downing, a writer on ornamental landscapes, &c., is laying out the extensive grounds attached to the Institute, and planting them with trees and shrubbery. The whole surface has been drained and subsoiled, and it is intended to form, with these grounds, one continuous park, extending from the Capitol westward to the Potomac. This area will include the site of the Washington